



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,675	07/08/2003	Trond A. Jorgensen	7885.91US01	9822
23552	7590	04/19/2005		EXAMINER
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903				HAN, JASON
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/615,675	JORGENSEN, TROND A.
	Examiner Jason M. Han	Art Unit 2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 15 March 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date <u>10/7/03&4/2/04</u> .	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to Independent Claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant recites the limitation "a control electronic unit", which is indefinite since independent Claim 1 recites a "control electronic unit". Should the limitation in Claim 12 be "said control electronic unit" or is it some other unit? The examiner has based the following prior art rejection under the best-deemed interpretation.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 8-10, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyd et al. (U.S. Patent 6449439).

5. With regards to Claim 1, Boyd discloses a light source device for illuminating microdisplay device including:

- A housing [Figure 2: (204)] having a specularly and/or diffusely light reflective interior surface [Column 4, Lines 57-59] and an exit aperture [Figure 2: (210)], wherein the housing defines a cavity, further wherein:
 - = Two or more light emitting devices [Figure 2: (202)] are mounted on or in walls of the housing [Column 3, Lines 35-37] which do not directly face the exit aperture, for emitting light into the cavity;
 - = The exit aperture being adapted to the shape and size of the microdisplay device selected from the group consisting of DMD, LCOS, LCD, and GLV [Column 4, Lines 37-54]; and
 - = The light source device having electrical power supply unit [Column 3, Lines 37-41] and control electronic unit [Figure 2: (224)].

It should be noted that it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138. In addition, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

Ex parte Masham, 2 USPQ2d 1647 (1987). Thus, the prior art of Boyd is

commensurate to the scope of the claim as broadly interpreted by the examiner [MPEP 2111].

6. With regards to Claim 3, Boyd discloses the at least two light emitting devices supplied with electricity from a single power supply [Column 3, Lines 37-41].
7. With regards to Claim 8, Boyd discloses optical components [Figure 3: (302, 308, 310); Column 4, Lines 57-61].
8. With regards to Claim 9, Boyd discloses a lens [Figure 2: (206, 210); Figure 8: (28, 30); Column 7, Lines 44-50] in the light path.
9. With regards to Claim 10, Boyd discloses a transparent window or lens [Figure 2: (206, 210); Figure 8: (828, 830); Column 7, Lines 44-50].
10. With regards to Claim 18, Boyd discloses imaging and/or integrating optics [Figure 2: (214); Figure 8: (828); Column 7, Lines 44-46] in the light path outside the housing, from exit aperture to microdisplay.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2, 4, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (U.S. Patent Number 6449439).
12. With regards to Claim 2, Boyd discloses the claimed invention as cited above, but does not specifically teach the at least two light emitting devices with separate

Art Unit: 2875

power supply units. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate separate power units for the light emitting devices, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In this case, multiple power sources could provide backup in case of malfunction of a single source.

13. With regards to Claim 4, Boyd discloses the claimed invention as cited above. In addition, Boyd teaches the at least two light emitting devices emitting light of different wavelengths [Column 3, Lines 28-32].

14. With regards to Claim 13, Boyd discloses the claimed invention as cited above, but does not specifically teach the housing being made of a material with good thermal conductivity properties. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate into the housing a material with good thermal conductivity properties, since it has been held to be within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. In this case, a housing incorporating a good thermal conductive material would provide greater heat transfer, providing safety to the device and user, as well as ensuring efficiency and longevity for light emitting diodes.

15. Claims 5, 7 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (U.S. Patent Number 6449439) as applied to Claims 4 and 1, respectively above, and further in view of Parker et al. (U.S. Patent 6224216).

16. With regard to Claims 5 and 7, Boyd discloses the claimed invention as cited above, but does not specifically teach the control unit being adapted to control on and off switching of the light emitting in sequences (re: Claim 5), nor the light emitting devices being adapted to emit red, green, and blue light where the control unit is adapted to switch said devices on and off to provide cycles of the colors to the microdisplay device (re: Claim 7).

Parker teaches a control unit [Figure 2: (56)] being adapted to control on and off switching of the light emitting in sequences [Column 3, Lines 1-12; see also Summary], as well as light emitting devices adapted to emit red, green, and blue light where the control unit is adapted to switch said devices on and off to provide cycles of the colors to the microdisplay device [Column 3, Lines 1-12; see also Summary].

It would have been obvious to one ordinarily skilled in the art at the time the invention was made to modify the illumination device of Boyd to incorporate the control unit of Parker in order to provide greater optical control of the illumination and efficiency for the display.

17. With regard to Claims 14-15, Boyd discloses the claimed invention as cited above, but does not specifically teach a cooling system (re: Claim 14), nor said system embedded in the housing (re: Claim 15).

Parker teaches a cooling system [Figure 2: (50); Column 4, Lines 15-24], as well as the cooling system being completely embedded in a housing [Figure 2: (30)].

It would have been obvious to one ordinarily skilled in the art at the time the invention was made to modify the illumination device of Boyd to incorporate the cooling

system of Parker. It should be noted that both Boyd and Parker employ light emitting diodes within a projection display. Therefore, it would have been obvious to combine the references, since Parker teaches a cooling system embedded in a housing of a projection display like that of Boyd for the purpose of providing greater heat transfer and ensuring the longevity of the light emitting diodes.

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (U.S. Patent 6449439) as applied to Claim 4, and further in view of Deck (U.S. Patent 5309277).

Boyd discloses the claimed invention as cited above, but does not specifically teach the control unit adapted to adjust the wavelength and brightness/intensity of the light emitted from the exit aperture by individual control of the light emitting devices or groups of light emitting devices.

Deck teaches, "The FIG. 4 embodiment thus effectively eliminates temporal intensity nonuniformities due to common mode variations through the use of optical feedback. In this modified operating arrangement of the FIG. 1 illuminator 1, a small portion or fraction of the light from the receiving surface portion 9 is redirected, as with a beamsplitter such as the plane beamsplitter 12, onto a photosensitive cell or detector 14 such as a conventional photodiode having suitable sensitivity to the predetermined wavelength(s) emitted by the illumination sources 4. The signal from the cell or detector 14, after optional signal conditioning or preprocessing at 16, is directed to the controller 10 which automatically and dynamically corrects for illumination output variations that are sensed by the detector 14 by correspondingly adjusting, in any known or

appropriate manner, the drive current and/or operating voltage fed to the illumination sources 4 in accordance with the feedback signal [Column 8, Line 54 – Column 9, Line 4]."

It would have been obvious to one ordinarily skilled in the art at the time the invention was made to modify the illumination device of Boyd to incorporate the illumination control of Deck in order to provide greater control over the optical characteristics of the device, thus greater efficiency, in utilizing the light from the sources.

19. Claim 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (U.S. Patent 6449439) as applied to Claim 1, and further in view of Skinner et al. (U.S. Patent 6447146).

Boyd discloses the claimed invention as cited above, but does not specifically teach an illuminating cavity comprising a light sensor, which is further connected to a control unit to adjust optical characteristics of light sources within said cavity.

Skinner teaches, "Additionally, the dimming ballasts along with the control logic can be used for keeping the lamps off until the display system is activated. The dimming feature is also used for manual brightness control or ambient light sensing control [Column 2, Lines 30-33; see also last sentence in Abstract]."

It would have been obvious to one ordinarily skilled in the art at the time the invention was made to modify the illuminating cavity of Boyd to incorporate the dimming feature, as taught by Skinner, in order to provide greater optical control for the light sources.

Art Unit: 2875

20. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (U.S. Patent 6449439) in view of Parker et al. (U.S. Patent Number 6224216) as applied to Claim 15 above, and further in view of Skinner et al. (U.S. Patent 6447146).

Boyd in view of Parker discloses an illuminating cavity for a microdisplay device as described above, but does not specifically teach an illuminating cavity comprising a temperature sensor, which is further connected to an electronic control unit. Boyd discloses the claimed invention as cited above, but does not specifically teach an illuminating cavity comprising a light sensor, which is further connected to a control unit to adjust optical characteristics of light sources within said cavity.

Skinner discloses a means for controlling temperatures in a backlight of a flat-panel display (e.g. LCD), whereby temperature sensors [Figure 7: (71, 63, 64)] are in electrical communication with a microprocessor [Figure 7: (70)] that controls cooling fans [Figure 7: (29)].

It would have been obvious to modify the illuminating cavity of Boyd in view of Parker to incorporate the cooling control system of Skinner, whereby a mechanism is provided for achieving luminance stability of the light sources, high efficiency and long life through controlling and maintaining said light sources' temperatures [see Abstract of Skinner]. In other words, it provides a means for safely preventing overheating due to high ambient temperatures within a housing and component failures.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2875

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH (4/1/2005)


Stephen Husar
Primary Examiner